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See Us At EAA AirVenture Oshkosh or Your Local Airport

by Cassandra Isackson
Director, Minnesota DOT Office of Aeronautics


Cassandra Isackson

We are just weeks away from the opening of EAA AirVenture Oshkosh in Oshkosh, Wisconsin, July 22-28, 2019. AirVenture is well known as the world's largest aviation gathering and fly-in. For us at MnDOT Aeronautics, the event offers an opportunity to meet individual Minnesota pilots, welcome attendees to stop and visit Minnesota airports on the way to and from the event, and meet with our peers from across the nation. It is a fun and productive time for all things aviation!

We have heard that the Experimental Aircraft Association (EAA) expects nearly 800 exhibitors this year, including about 30 from our own state. We are excited to be one of them! MnDOT Aeronautics will have a large, open, inviting booth space at numbers **3170 & 3171** in the Epic Exhibit Hangar C – the hangar with the nice restrooms, sort of by the control tower. We are in the first isle in the northeast area of the building. Please stop in to say "Hi," and chat with us about your favorite airport – or favorite aviation activity.

I will be there, along with other Aeronautics staff, to answer your questions about the "Fly-in-Minnesota" program and State Aviation System Plan (SASP), provide state charts and directories, and other information. Other folks will join us at our booth as well. Individual airports will send representatives to talk about their community and give a personal insight into why you might want to fly in to their community. We are also hoping that the Minnesota Department of Natural Resources and other state agencies will send their experts to tell you more about state parks and trails you may want to explore.

Summer will also be filled with a variety of airport fly-in breakfasts and BBQs. Although my schedule fills up quickly, I am still open on a few weekends. Mama always said, "Don't go where you are not invited." So, if you would like us to attend, please invite us in advance.

There are many new faces in our office as the result of staff changes. We have said our good-byes to those who have retired or moved on to other jobs, and have welcomed our new employees with smiles. We'd like you to meet the new folks too, and let them get to know your airport and community, so they can serve you better as they gain experience.

As always, we love to come to your community and share the excitement and wonder of flying in our beautiful state. Until then, fly safely, and happy landings! ❑

Lightning... Take It Seriously!

Lightning is a phenomenon that occurs in nature at nearly any time of the year, even in Minnesota. We can expect to see it in the spring and all the way through fall as the seasons warm and then rapidly cool. And we have even had "thunder snow" during a number of our snowy winters. While awe inspiring and occasionally frightening, lightning should always be taken seriously.

The greater part of this article will deal with lightning and its potential impacts to those on the ground. This information relates to people who are in their hangars getting ready to fly, or those on the tarmac starting a walk-around for instance, when a thunderstorm suddenly pops up, or can be seen or heard in the near distance! Whatever the case, *please* read on.

On The Ground

In the words of the National Oceanic and Atmospheric Administration (NOAA), lightning is quite simply "...a giant spark of electricity in the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the

ground. However, when the differences in charges become too great, this insulating capacity of the air breaks down and there is a very rapid discharge of electricity that we call lightning."

From 2016-2018, 76 people in the United States alone were victims of lightning strikes. A majority of these deaths occurred in the months of June and July, and interestingly, a majority of the victims were men. While most often it isn't possible to know how a victim has been struck, there are five known ways that lightning can injure or kill a person. They are:

1. The Direct Strike
2. The Side Flash
3. Ground Current
4. Conduction
5. Streamers

Photo Courtesy of Willi Wilkens/UWP NOAA/NWS

The Direct Strike occurs when the victim becomes a part of the main channel of the lightning discharge. These strikes most often occur when people are in open areas.

A Side Flash occurs when lightning strikes a taller object close to the victim and a portion of the current produced by that strike jumps from the taller object to the person. The person in this case acts as a "short-circuit" for a portion of the energy released from that initial discharge.

The Ground Current strike occurs when lightning hits an object, or a tree for instance, and travels outward from the strike point on the surface of the ground. Because the charge covers a much greater area than other types of strikes, it claims more victims as it travels through garage floors that contain conductive materials (like rebar, for instance). The Ground Current strike also kills more farm animals than most other types of strikes.

Conduction takes place when lightning (current) travels through metal surfaces. It can travel very long distances along metal fences. If you are touching a fence when conduction occurs, it could cause fatal injuries. Bear in mind that metal does not attract lightning as many people think, but it does provide a pathway for the charge to flow. Contact with anything connected to metal wires, metal surfaces, or plumbing, whether inside or outside, is risky.

A Streamer develops as a downward-moving leader approaches the ground. NOAA advises, "Typically, only one of the streamers makes contact with the leader as it approaches the ground and provides the path for the bright return strike. However, when the main channel discharges, so do all the other streamers in the area. If a person is a part of one of these streamers, they could suffer significant injury or death as the streamer discharges."

So, what can you do to protect yourself from being hit by lightning on the ground? As soon as you see lightning or hear thunder, take shelter in a sturdy building. If you are in your standard vehicle, roll up the windows and stay inside. If you are in a soft-top vehicle, get out and go find a sturdy building. Stay away from trees, metal poles, fences, pipes and other metal structures. If you are caught in the open or feel a tingling sensation on your body, do the following:

1. Do not lie down on the ground.
2. Quickly put your feet and knees close together.
3. Crouch down on the balls of your feet, getting as low as possible. Crouching down is the best combination of touching the ground as little as possible and being as low as possible.
4. Put your forearms on your knees and put your head on your hands, covering your ears.
5. Close your eyes to protect them from the bright flash.
6. Do not put your hands or knees on the ground.

Also, it is wise to remember that lightning strikes have been recorded 20 miles from the parent storm cell.

In The Air

General aviation pilots should always avoid flying near thunderstorms. Besides the potential of a lightning strike on the aircraft, it is very likely a thunderstorm will encounter a number of weather conditions that could take down a small aircraft. Those conditions may include severe turbulence, large hail, wind shear, powerful up and down drafts, and more.

Most commercially constructed general aviation aircraft with aluminum skins provide at least a basic level of protection from lightning strikes. But if struck, an aircraft can suffer significant damage to its propellers and wingtips. Pilots should not fly anywhere near a lightning storm or through other clouds associated with that cell as they may contain sufficient electric charge to produce lightning.

The point is, lightning can be beautiful and awe-inspiring, but given the right path or right conditions, it can be deadly and destructive. That is why it is extremely important to always take it seriously.

For additional information, go to: https://www.weather.gov/safety/lightning. ❑